nebular light remained at the lowest point reached by the meteor, which assumed a vague oval shape and imperceptibly faded away. For four minutes the nebular light was easily watched; then I ceased to note the time, and after two or three minutes more I failed to distinguish it.

The position of the nebulous remains of the meteor appeared to me vertically beneath β Ursæ Majoris, at a distance from it rather more than one-third the distance of α from β. I did not notice any motion, but if the apparent upward movement of the nebulous light were due to a north-north-west current of air drifting the light incandescent ash of the meteor to the south-south-west, the motion would be imperceptible to a distant observer who was nearly in the same line up or down the direction of the wind. EDWARD F. LINTON.

Bournemouth, September 8.

IN case it may prove of interest, I write to say that I noticed the meteor mentioned in your last number by Mr. John Earle, as having been seen on the night of August 26. I was walking in the country that evening, and not long after 10 p.m. I saw the landscape lighted up as by a vivid flash of lightning from behind me—my back being towards the north at the time. On turning round, I just caught sight of the meteor as it disappeared, leaving a bright track behind it, about two degrees of arc in length. This track, as seen from where I stood, lay half-way, or nearly so, between the last star in the tail of Ursa Major and Alpha Canum Venaticorum, and in a line connecting the above two stars. It lasted several minutes, as far as I could judge, gradually fading away, and curled up at the lower end, after the manner described by Mr. Earle; but I did not detect any change of position. It seemed to remain about half-way between the end of the tail of Ursa Major and Alpha Canum Venaticorum all the time it was visible to me. I regret that, not having matches with me, I was unable to read my watch and take the exact time of the phenomenon. T. B CARTWRIGHT.

Brackley House, Brackley, September 7.

THE meteor of August 26, referred to by Mr. Earle, was seen at Northwich by me, and noted as remarkable owing to the long continuance of the brilliant light in the sky. We had had thunder and lightning in the afternoon, but the clouds had cleared away, and the stars were visible through a faint haze. On entering my garden shortly after 10 p.m., I saw a most brilliant flash of what I took to be lightning. Not hearing any thunder, I looked to see from whence the flash had proceeded. I then saw, almost in the zenith, but a little to the west, a brilliant streak of light. This remained nearly stationary for perhaps half a minute, and then one end bent till the light assumed the shape of the letter J, or, according to a note made at the time, the shape of a hockey stick. Whilst this was taking place there was a manifest movement of the whole, as I thought, towards the west. In the space of two or three minutes the light faded away. The whole time, from the brilliant flash till the fading away of the phosphorescent light, could not have been more than three minutes. Perhaps the slight haze hid the light here sooner than at Gloucester.

Northwich, September 9. THOS. WARD.

Drought at Antigua.

[MR. THISELTON-DYER has kindly sent us the following interesting note received by him from the Superintendent of Agriculture, St. John's, Antigua.—ED. NATURE.]

We are suffering from a terrible drought here. I thought you might like to look at the accompanying average prepared for H.E. the Administrator. The *Bryophyllum calycinum* weeds are drying up, and in some parts the Opuntias are dying! No single fall of under 1 inch is of any use to us.

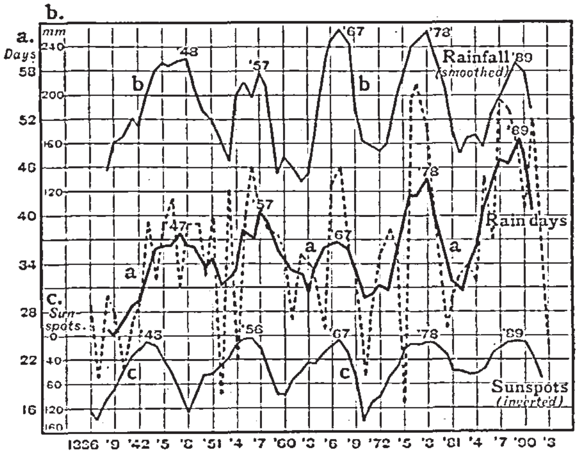
	Jan.	Feb.	March.	April.	May.	June.	July.	
1891	3·74	2·24	0·33	2·82	1·87	4·02	10·04	=25·06
1892	5·81	0·83	0·88	1·18	2·39	3·28	3·15	=17·72
1893	1·77	1·48	2·64	2·14	2·02	2·19	4·63	=16·87
1894	2·02	1·06	1·31	2·84	2·86	1·54	1·73	=13·36

NOTE.—1891 was a fair year with annual fall 3·83 in. over that for last 20 yrs.
1892 ,, very dry ,, ,, 7·24 below ,, ,,
1893 ,, ,, ,, ,, 6·73 ,, ,, ,,
1894 promises to be worse than any

Antigua, West Indies, August 13. C. A. BARBER.

On Spring Rains in Geneva.

THE variation of rain at Geneva Observatory in spring (March to May), through a long series of years, appears to have been subject to a certain periodicity, to which it might be well to draw attention, even if its (considerable) similarity to that of the sun-spot curve should prove to be merely of a fortuitous nature. In the accompanying diagram, I have dealt with both rainfall and rain days (rain *hours* would have been better than rain *days*, but these extend back only to 1861). The dotted-line curve shows the actual variation in the annual number of rain days, and the continuous curve with it is the result of smoothing with averages of five. Above is a similarly smoothed curve of the spring rainfall, which is very similar (the actual variations are not given). Below is the *inverted* sun-spot curve.



The letters a, b, c, connect the curves with their respective vertical scales on the left. It will be seen that, the sun-spot *minima* occurring in 1843, 1856, 1867, 1878, and 1889, we have in the smoothed rain curves, *maxima* in 1847 or 1848 (but note that the curves rise nearly as high in 1844), in 1857, in 1867, in 1878, and in 1889. In the case of the sun-spot *maxima* (the earlier at least) there seems to be more "lag."

It would be interesting to know what happens in other parts of Europe in this respect. The Paris curve is, I think, like the Geneva one; but Bremen and Berlin present some important differences. A. B. M.

Interesting Marine Animals.

TWO rare and interesting animals, which we have had alive and under observation for a week past in the aquarium of the Port Erin Biological Station, are probably worthy of record in the pages of NATURE. The one is the yellow variety (?) of *Sarcodictyon (Rhizoxenia) catenata*. This was first found by Forbes and Goodsir in the Hebrides, and has been described since by myself from specimens dredged in Loch Fyne in 1883. We have now found it here, off the west side of the Calf Island, in 25 fathoms, and have at present several colonies alive with the polypes expanded. The commoner red form of *Sarcodictyon* is rarely seen expanded, and I do not know that the yellow one has ever been seen in this condition. The polypes are of a beautiful transparent white, and glisten in the light like frosted silver.

The other interesting animal is the Polynoïd worm *Panthalis oërstedi*. We dredge in the deep water near here large muddy sausage-like tubes, which sometimes contain *Panthalis*, but are frequently empty. Some doubt has been felt, however, as to whether the *Panthalis* really builds the tubes, and it is therefore satisfactory to have had the matter definitely settled by the formation of a new tube before our eyes by a living *Panthalis* in the aquarium during the last few days. Mr. Arnold Watson, of Sheffield, who has been studying the formation of Polychæte tubes for some years, after examining our preserved specimens, became anxious to settle the *Panthalis* question, and came here on my suggestion to get living material. I was fortunately able to take a steamer to the ground on the 25th inst., and amongst the tubes brought up in the dredge, from over 50 fathoms, one

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contained a fine living *Panthalis*, which was successfully transferred to a small tank provided with a supply of the fine mud in which the animal lives. This worm has been kept under the closest observation by Mr. Watson and his son during the whole daytime and part of the night for the past week, and their care and enthusiasm have been rewarded by the collection of a number of drawings, photographs, and notes of the appearance and movements of the animal. During that time the *Panthalis* has deserted its old tube, and has formed a new one in the mud, fortunately using the glass of the tank for part of one side, so that the processes of scooping out the mud and of putting on the lining of mucous threads, and the various movements of the animal, have been readily enough seen—if one does not mind the inconvenience of lying for hours in a cramped position on the damp concrete floor of the aquarium room. The worm, and Mr. Watson, are still alive and at work, and we may expect a detailed account of their mutual labours from the latter when his observations are completed. W. A. Herdman.

Port Erin, August 31.

Symmetry of "Aurelia aurita."

During the last few months I have seen countless thousands of living specimens of *Aurelia aurita*, and have paid special attention to abnormal varieties. I have found not only such as have throughout the five-fold symmetry, seen by Mr. Unthank at Brightlingsea, as named in Nature for August 22, but have with me on the *Glimpse* specimens stained and mounted as lantern slides having entire three-fold and entire six-fold symmetry, and one in which it is partially two-fold. I think it may be said that in Suffolk and Essex, a few such abnormal varieties occur per thousand of the normal. An imperfect four-fold symmetry is much more common. H. C. Sorby.

Yacht *Glimpse*, Burnham, Essex, August 31.

MARS AS HE NOW APPEARS.

Statistics are looked upon, as a rule, as hateful things, but nevertheless it would be interesting to know how many people out of the millions who walk this globe will turn at this period a telescope, however small it may be, in the direction of the planet Mars, which is shining so brilliantly in our eastern heavens. Times there were, no doubt, as for instance in the early Babylonian and Egyptian civilisation, when Mars was more generally the subject of scrutiny than to-day, but then the appearance of this intermittent and gradually brightening object made far different impressions on the minds of those early observers. Early it was that the peculiar coloured rays cast by his shining surface on this earth were first remarked. He was known to the Greeks and Hebrews as the fiery planet, and in Sanskrit he was referred to as like "burning coal."

To-day, however, the case is quite different. Many there are who may happen to notice an object more brilliant than usual in the heavens, and make some brief allusion to the fact, and trouble himself or herself no more about it, but it is to the increasing few that his appearance is of the greatest interest. To those who have once made use of even a small telescope to observe the planets, the fact that the nearest, and, it may be added, the most interesting, of them, namely Mars, is approaching us day by day, will be certain to raise a strong desire to catch another glimpse of his disc under such favourable conditions.

So much has been written about the markings of his surface, which represent huge areas of water and land, to say nothing of the most curious network of canals, that reference only to the very recent work on them will here be dealt with.

A few brief remarks, before proceeding, as to the position of the planet in the heavens, and to the approaching opposition.

Firstly, as to position. At the present time Mars is moving easterly in the heavens, situated at the southernmost corner of the constellation of Aries. By September 15 he will have reached his most eastern point; and from that time he will turn in his loop, and continue his apparent journey in the westward direction, passing into the neighbouring constellation of the Fish.

The following table will perhaps be useful to those who have not the data at hand. The times referred to are Greenwich mean time.

Date.		R.A. Noon.	Decln. Noon.	Diam.	Rises.	Transit.	Sets.
		h. m. s.	° ′	″	h. m.	h. m.	h. m.
Sept. 8	...	2 14 36	9 37 N	21·8	8 6	14 59	21 52
18	...	2 15 48	9 49	23·4	7 30	14 24	21 18
28	...	2 11 15	9 42	24·9	6 46	13 40	20 34
Oct. 8	...	2 1 30	9 16	25·6	5 59	12 50	19 41
18	...	1 48 38	8 41	25·7	5 10	11 58	18 46
28	...	1 35 38	8 9	24·6	4 21	11 6	17 51
Nov. 7	...	1 25 29	7 51	22·8	3 29	10 16	16 55

The fact of Mars being the first superior planet reckoning from the sun, his opposition, or in other words, the position in which he is to be found in his orbit when on the same side of the sun as the earth, with all three bodies in a straight line, affords us a good opportunity for studying his surface features. Owing, however, to the non-concentricity of planetary orbits, his distance from the earth at these times is always varying, and this explains why some oppositions are more favourable for observation than others. The nearest approach of Mars to the earth may be approximately given as 35,000,000 miles, his distance at the coming opposition exceeding this number by about 5,500,000 miles.

In consequence of these varying distances, the apparent size of his disc is undergoing changes; thus the conditions at each succeeding opposition are rarely the same.

That the coming opposition is a very favourable one, can be seen from the table given below, and that it will be more favourable than that of 1892 for observers on the northern hemisphere is due to the planet's more northern declination at this period, bringing him above the mists which spoil good seeing near the horizon.

Date of Opposition.		Semi-diameter.
		″
1862 October 5	... ...	10·8
1869 February 13	... ...	8·2
1873 April 27 ...	... ...	9·7
1877 September 5	... ...	14·7
1881 December 26	... ...	9·2
1884 January 31	... ...	8·3
1888 April 10 ...	... ...	9·2
1892 August 13	... ...	14·7
1894 October 20	... ...	12·9

Let us turn our attention now to the observations that have been made up to the present time, and see what has as yet been learnt from a study of the Martian surface. The work to which we are now about to refer hails from the Lowell Observatory, Flagstaff, Arizona, and the observations have been and are continually being made by its founder, Mr. Percival Lowell, who has set his observatory on this spot for the single purpose of carefully studying the surface of Mars during this period of opposition. The old saying that the early bird gets the first worm, can be applied with some force to Mr. Lowell, for he has been rewarded with ample satisfaction for commencing his observations at such an early date. Indeed, perhaps the great value of this series of observations which he is making will be in its very length, for is he not, from a study of his own observations, watching attentively the various stages of a vast aquatic display which becomes more and more distinct the nearer the earth is approached, and therefore must be continually and for a long period observed?

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